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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/741,673	12/19/2000	Neil C. Bird	GB 000057	7056

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EXAMINER	
NGUYEN, LINH M	
ART UNIT	PAPER NUMBER
2816	

DATE MAILED: 03/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/741,673	BIRD, NEIL C.	
	Examiner	Art Unit	
	Linh M. Nguyen	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 January 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,14 and 15* is/are rejected.

7)☒ Claim(s) *11-13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

This is a response to the Applicant's amendment submitted on 01/21/2003. In this amendment, claims 1-15 are now presented in the instant application.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-10 and 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Bird (U.S. Patent No. 5,721,422).

With respect to claim 1, Bird discloses, in figure 1, a multiplexer circuit for switching a selected one of a plurality of current inputs carried by respective input lines [21a, 21b] for a common output; the circuit comprises, for each input line: (1) a diode clamp [S1, S2] comprising first and second clamp terminals [6, 7] and first and second clamp diodes [S1, S2] arranged in series with the same polarity between the clamp terminals [6, 7], and (2) isolation means [8, capacitor connected in parallel with element 8] provided between each input line [21a, 21b] and the common output *(on line 11a)*; wherein (a) each input line is connected to the isolation means and to a point [5'] between the first and second clamp diodes, and (b) the diode clamp is operable in two modes: (i) a first mode in which voltages are applied to the clamp terminals such that the diodes of the diode clamp are forward biased and hold the input line at a first voltage which prevents the passage of current from the input line to the common output *(see col. 6, lines 13-28)*, and (ii) a second mode in which the voltages are applied to the clamp terminals such that

the diodes of the diode clamp are reverse biased and the passage of the current from the input line to the common output is allowed *(see col. 6, lines 29-39).*

With respect to claim 2, figure 1 of Bird shows that the isolation means comprises an isolation diode [8].

With respect to claim 3, Bird discloses, in figure 1 and col. 6, lines 29-39, that the first voltage is selected to reverse bias the isolation diode, thereby preventing the passage of current from the respective input line to the common output.

With respect to claim 4, Bird discloses, in figure 1, that the isolation means comprises a capacitor *(which is connected in parallel with diode 8).*

With respect to claim 5, Bird discloses, in figure 1 and col. 6, lines 13-39, that the first voltage is selected depending on the source of the input current so as to prevent current flowing from the source of the input current.

With respect to claim 6, Bird discloses, in figure 1 and col. 6, lines 13-39, an electric device comprising (1) an array of charge storage elements which (i) are arranged in rows [N,N',...] and columns [M,M+1,...], and (ii) are coupled to row and column conductors [21, 11]; wherein the column conductors are arranged in groups [11a, 11b, ..] (see figure 7) and each group has a respective common output [nodes on 11a]; (2) a multiplexer circuit [S1, S2, 8, capacitor in parallel with 8], for switching a selected one of a plurality of current inputs carried by respective input lines [21a, 21b] to the common output [nodes on 11a], having, for each input line, (i) a diode clamp with first and second clamp terminals [7,6] and first and second clamp diodes [S1,S2] arranged in series with the same polarity between said clamp terminals, and (ii) isolation means [8] between each input line and the common output; wherein (a) each input line

is connected to the isolation means and to a point [5'] between the first and second clamp diodes, and (b) the diode clamp operates (i) in a first mode in which voltages are applied to the clamp terminals such that the diodes of the diode clamp are forward biased and hold a first voltage that prevents the passage of current from the input line to the common output, and (ii) in a second mode in which the diodes of the diode clamp are reverse biased allowing for the passage of a current from the input line to the common output, and (c) the multiplexer circuit couples the column conductors of the respective groups to the respective common output; and (3) a charge measurement device [70] that measures a flow of charge from the common output.

With respect to claim 7, figure 1 of Bird shows that the charge storage elements have photosensitive pixels including a photodiode [8] and a switching diode [S1, S2].

With respect to claim 8, figure 1 of Bird shows that the isolation means has an isolation capacitor [capacitor in parallel with 8].

With respect to claim 9, Bird discloses, in figure 1 and col. 8, lines 3-23, that (i) the second mode charge flows from each input to the respective isolation capacitor, and (ii) the diode clamp is operable in a third mode in which voltages are applied to the clamp terminals [6, 7] such that the diodes [S1, S2] in the diode clamp are forward biased and hold the input line at a second voltage which causes charge stored on the isolating capacitor to flow between the isolation capacitor and the charge measurement device [70].

With respect to claims 10 and 14-15, figure 1 of Bird shows that the first voltage is selected to reverse bias the switching diode (see col. 6, lines 37-38).

Allowable subject matter

3. Claims 11-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter:

Prior art fails to disclose or suggest the configuration of a variable capacitor in the pixels and that the determination of the capacitance is based on the measured current, as called for in claim 11 *(which claims 12 and 13 depend on).*

Remarks and conclusion

5. Applicant's arguments with respect to claims 1 and 6 have been considered but they are not persuasive.

The Examiner has seriously considered the Applicant's arguments on claims 1 and 6 in paragraph 4 on page 4 of the amendment in regard to the cited Prior Art Bird, in which the Applicant stated that " element 21 a (or 21b) is not connected to a point between elements S1 an S2 and to element 8". The examiner disagrees with that statement since Fig. 1 of Bird clearly shows that input line 21a (or input line 21b) is connected to a point between elements S1 and S2, point at node [5'], and to element 8. Therefore, claims 1 and 6 remain rejected as being anticipated by Bird (U.S. Patent No. 5,721,422).

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh M. Nguyen whose telephone number is (703) 305-0414. The examiner can normally be reached on Alternate Mon, Tuesday - Friday from 7:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on (703) 308-4876. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-0142 for regular communications and (703) 305-0142 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Linh M. Nguyen

TIMOTHY P. CALLAHAN
SUPERVISORY PATENT EXAMINER
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